

AMENDMENTSIn the Claims

1. **(Currently Amended)** A method comprising:
detecting a failure of a first link, wherein
said first link is between a network element and an upstream portion of a
communications network;~~and~~
~~said first link is associated with a virtual network; and~~
in response to said detecting said failure of said first link, maintaining a
communications channel between said downstream portion of said
communications network and said upstream portion of said communications
network by disabling a port of said network element coupled to a second link
between said network element and a downstream portion of said communications
network;~~wherein~~
~~said second link is associated with said virtual network,~~
~~said port of said network element is disabled as a result of~~
~~said port being associated with said virtual network, and~~
~~a bandwidth, between the upstream portion of the~~
~~communications network and the network element,~~
~~falling below a predetermined threshold as a result of~~
~~the failure of the first link; and~~
in response to detecting a recovery of said first link, maintaining said
communications channel between said downstream portion of said
communications network and said upstream portion of said
communications network by re-enabling said port of said network
element coupled to said second link between said network element and
said downstream portion of said communications network.
2. **(Original)** The method of claim 1, wherein
said downstream portion of said communications network comprises a redundantly-
linked network element.

3. (Original) The method of claim 2, wherein
said redundantly-linked network element comprises a protocol stack including a first
protocol stack layer and a second protocol stack layer,
said first protocol stack layer is associated with one or more applications, and
said disabling comprises notifying said second protocol stack layer of said failure.
4. (Original) The method of claim 3, wherein
said network element comprises a primary network element,
said method further comprises enabling a third link between said redundantly-linked
network element and a secondary network element, and
said secondary network element is coupled to said upstream portion of said
communications network using a fourth link.
5. (Original) The method of claim 2, wherein said redundantly-linked network element
comprises a multi-homed endstation.
6. (Original) The method of claim 2, wherein said network element comprises a datalink
layer network element.
7. (Original) The method of claim 6, wherein said datalink layer network element
comprises an Ethernet switch.
8. (Original) The method of claim 2, wherein said upstream portion of said
communications network comprises a network layer network element.
9. (Original) The method of claim 2, wherein said disabling comprises:
disabling a plurality of links between said network element and a plurality of
redundantly-linked network elements.
10. (Original) The method of claim 2, wherein said disabling comprises:
disabling a link of a plurality of links between said network element and a plurality of
redundantly-linked network elements.
11. (Cancelled)

12. (Cancelled)
13. (Previously Presented) The method of claim 2, wherein said disabling comprises:
disabling said port of said network element coupled to said second link between said network element and said downstream portion of said communications network within a period of time substantially less than or equal to 50 milliseconds of said detecting.
14. (Previously Presented) The method of claim 2, wherein said disabling comprises:
disabling said port of said network element coupled to said second link between said network element and said downstream portion of said communications network within a period of time substantially less than or equal to 2 seconds of said detecting.
15. (Currently Amended) An apparatus comprising:
means for detecting a failure of a first link, wherein
said first link is between a network element and an upstream portion of a communications network;~~and~~
~~said first link is associated with a virtual network; and~~
means for maintaining a communications channel between said downstream portion of said communications network and said upstream portion of said communications network by disabling a port of said network element coupled to a second link between said network element and a downstream portion of said communications network, in response to detecting said failure of said first link,~~wherein~~
~~said second link is associated with said virtual network,~~
~~said port of said network element is disabled as a result of~~
~~said port being associated with said virtual network, and~~
~~a bandwidth, between the upstream portion of the~~
~~communications network and the network element,~~
~~falling below a predetermined threshold as a result of~~
~~the failure of the first link; and~~

means for maintaining said communications channel between said downstream portion of said communications network and said upstream portion of said communications network by re-enabling said port of said network element coupled to said second link between said network element and said downstream portion of said communications network.

16. (Original) The apparatus of claim 15, wherein
said downstream portion of said communications network comprises a redundantly-linked network element.
17. (Original) The apparatus of claim 16, wherein
said redundantly-linked network element comprises a protocol stack including a first protocol stack layer and a second protocol stack layer,
said first protocol stack layer is associated with one or more applications, and
said means for disabling comprises means for notifying said second protocol stack layer of said failure.
18. (Original) The apparatus of claim 17, wherein
said network element comprises a primary network element,
said apparatus further comprises means for enabling a third link between said redundantly-linked network element and a secondary network element, and
said secondary network element is coupled to said upstream portion of said communications network using a fourth link.
19. (Original) The apparatus of claim 16, wherein said redundantly-linked network element comprises a multi-homed endstation.
20. (Original) The apparatus of claim 16, wherein said means for disabling comprises:
means for disabling a link of a plurality of links between said network element and a plurality of redundantly-linked network elements.
21. (Cancelled)
22. (Cancelled)

23. (Previously Presented) The apparatus of claim 16, wherein said means for disabling comprises:

means for disabling said port of said network element coupled to said second link between said network element and said downstream portion of said communications network within a period of time substantially less than or equal to 50 milliseconds of said failure.

24. (Previously Presented) The apparatus of claim 16, wherein said means for disabling comprises:

means for disabling port of said network element coupled to said said second link between said network element and said downstream portion of said communications network within a period of time substantially less than or equal to 2 seconds of said failure.

25. (Previously Presented) A machine-readable storage medium having a plurality of instructions executable by a machine embodied therein, wherein said plurality of instructions when executed cause said machine to perform a method comprising:

detecting a failure of a first link, wherein

said first link is between a network element and an upstream portion of a communications network,~~and~~

~~said first link is associated with a virtual network; and~~

in response to said detecting said failure of said first link, maintaining a communications channel between said downstream portion of said communications network and said upstream portion of said communications network by disabling a port of said network element coupled to said second link between said network element and a downstream portion of said communications network,~~wherein~~

~~said second link is associated with said virtual network,~~

~~said port of said network element is disabled as a result of~~

~~said port being associated with said virtual network, and~~

~~a bandwidth, between the upstream portion of the communications network and the network element,~~

~~falling below a predetermined threshold as a result of the failure of the first link; and~~
in response to detecting a recovery of said first link, maintaining said communications channel between said downstream portion of said communications network and said upstream portion of said communications network by re-enabling said port of said network element coupled to said second link between said network element and said downstream portion of said communications network.

26. (Previously Presented) The machine-readable storage medium of claim 25, wherein said downstream portion of said communications network comprises a redundantly-linked network element.
27. (Previously Presented) The machine-readable storage medium of claim 26, wherein said redundantly-linked network element comprises a protocol stack including a first protocol stack layer and a second protocol stack layer, said first protocol stack layer is associated with one or more applications, and said disabling comprises notifying said second protocol stack layer of said failure.
28. (Previously Presented) The machine-readable storage medium of claim 27, wherein said network element comprises a primary network element, said method further comprises enabling a third link between said redundantly-linked network element and a secondary network element, and said secondary network element is coupled to said upstream portion of said communications network using a fourth link.
29. (Previously Presented) The machine-readable storage medium of claim 26, wherein said redundantly-linked network element comprises a multi-homed endstation.
30. (Previously Presented) The machine-readable storage medium medium of claim 26, wherein said disabling comprises:
disabling a link of a plurality of links between said network element and a plurality of redundantly-linked network elements.

31. (Cancelled)

32. (Cancelled)

33. (Previously Presented) The machine-readable storage medium of claim 26, wherein said disabling comprises:

disabling said port of said network element coupled to said second link between said network element and said downstream portion of said communications network within a period of time substantially less than or equal to 50 milliseconds of said detecting.

34. (Previously Presented) The machine-readable storage medium of claim 26, wherein said disabling comprises:

disabling said port of said network element coupled to said second link between said network element and said downstream portion of said communications network within a period of time substantially less than or equal to 2 seconds of said detecting.

35. (Currently Amended) A data processing system comprising:

a redundantly-linked endstation; and

a network element configured to

detect a failure of a first link, wherein

said first link is between said network element and an upstream portion of a communications network, ~~and~~

~~said first link is associated with a virtual network, and~~

in response to detecting said failure of said first link, maintain a communications channel between said redundantly-linked endstation and said upstream portion of said communications network by disabling a port of said network element coupled to said second link between said network element and said redundantly-linked endstation, ~~wherein~~

~~said second link is associated with said virtual network,~~

~~said port of said network element is disabled as a result of~~

~~said port being associated with said virtual network, and~~

~~a bandwidth, between the upstream portion of the communications network and the network element, falling below a predetermined threshold as a result of the failure of the first link, and~~
in response to detecting a recovery of said first link, maintain said communications channel between said redundantly-linked endstation and said upstream portion of said communications network by re-enabling said port of said network element coupled to said second link between said network element and said redundantly-linked endstation.

36. (Original) The data processing system of claim 35, wherein said network element comprises a primary network element, said redundantly-linked endstation is configured to enable a third link between said redundantly-linked endstation and a secondary network element, and said secondary network element is coupled to said upstream portion of said communications network using a fourth link.
37. (Original) The data processing system of claim 35, wherein said network element comprises an Ethernet switch.
38. (Currently Amended) A data processing system comprising:
a redundantly-linked endstation;
a primary network element, wherein
said primary network element is coupled to an upstream portion of a communications network using a first link, ~~wherein said first link is associated with a virtual network,~~
said primary network element is coupled to said redundantly-linked endstation using a second link, ~~wherein said second link is associated with said virtual network,~~ and
said primary network element is configured to detect a failure of said first link, and

disable a port of said primary network element coupled to said second link to maintain a communications channel between said redundantly-linked endstation and said upstream portion of said communications network in response to detecting said failure of said first link,

~~said port of said primary network element is disabled as a result of said port being associated with said virtual network, and a bandwidth, between the upstream portion of the communications network and the network element, falling below a predetermined threshold as a result of the failure of the first link~~

re-enable said port of said primary network element coupled to said second link to maintain a communications channel between said redundantly-linked endstation and said upstream portion of said communications network in response to detecting a recovery of said first link; and

a secondary network element, wherein

said secondary network element is coupled to said redundantly-linked endstation using a third link.

39. (Original) The data processing system of claim 38, wherein said redundantly-linked endstation is configured to enable said third link, and said secondary network element is coupled to said upstream portion of said communications network using a fourth link.
40. (Original) The data processing system of claim 38, wherein said primary network element comprises an Ethernet switch.
41. (Original) The method of claim 1, wherein said second link is a downstream link that is individually predetermined by a configuration interface.

42. (Original) The apparatus of claim 15, wherein said second link is a downstream link that is individually predetermined by a configuration interface.

43. (Original) The machine-readable storage medium of claim 25, wherein said second link is a downstream link that is individually predetermined by a configuration interface.

44. (Original) The data processing system of claim 35, wherein said second link is a downstream link that is individually predetermined by a configuration interface.

45. (Original) The data processing system of claim 38, wherein said second link is a downstream link that is individually predetermined by a configuration interface.

46. (Cancelled)

47. (Cancelled)

48. (Cancelled)

49. (Cancelled)

50. (Cancelled)

51. (Previously Presented) The method of claim 1, wherein said disabling further comprises:
disabling said port of said network element coupled to said second link on-demand, in response to analyzing a plurality of system attributes.

52. (Previously Presented) The apparatus of claim 15, wherein said means for disabling further comprises:

means for disabling said port of said network element coupled to said second link on-demand, in response to analyzing a plurality of system attributes.

53. (Previously Presented) The machine-readable storage medium of claim 25, wherein said disabling further comprises:

disabling said port of said network element coupled to said second link on-demand, in response to analyzing a plurality of system attributes.

54. (Previously Presented) The data processing system of claim 35, wherein said network element is further configured to:

disable said port of said network element coupled to said second link on-demand, in response to an analysis of a plurality of system attributes.

55. (Previously Presented) The data processing system of claim 38, where said primary network element is further configured to:

disable said port of said primary network element coupled to said second link on-demand, in response to an analysis of a plurality of system attributes.

56. (Previously Presented) The method of claim 2, further comprising:

said redundantly-linked network element failing back to said second link when said first link and said second link become operational again.

57. (Previously Presented) The apparatus of claim 16, further comprising:

means for failing back said redundantly-linked network element to said second link when said first link and said second link become operational again.

58. (Previously Presented) The machine-readable storage medium of claim 26, wherein said method further comprises:

said redundantly-linked network element failing back to said second link when said first link and said second link become operational again.

59. (Previously Presented) The data processing system of claim 35, wherein said redundantly-linked endstation is configured to fail back to said second link when said first link and said second link become operational again.

60. (Previously Presented) The data processing system of claim 38, wherein said redundantly-linked endstation is configured to fail back to said second link when said first link and said second link become operational again.

61. (New) The method of claim 1, wherein
said first link is associated with a virtual network;
said second link is associated with said virtual network; and
said port of said network element is disabled as a result of
said port being associated with said virtual network, and
a bandwidth, between the upstream portion of the communications network and
the network element, falling below a predetermined threshold as a result of
the failure of the first link.

62. (New) The apparatus of claim 15, wherein
said first link is associated with a virtual network;
said second link is associated with said virtual network; and
said port of said network element is disabled as a result of
said port being associated with said virtual network, and
a bandwidth, between the upstream portion of the communications network and
the network element, falling below a predetermined threshold as a result of
the failure of the first link.

63. (New) The machine-readable storage medium of claim 25, wherein
said first link is associated with a virtual network;
said second link is associated with said virtual network; and
said port of said network element is disabled as a result of
said port being associated with said virtual network, and
a bandwidth, between the upstream portion of the communications network and
the network element, falling below a predetermined threshold as a result of
the failure of the first link.

64. (New) The data processing system of claim 35, wherein
said first link is associated with a virtual network;
said second link is associated with said virtual network;
said port of said network element is disabled as a result of
 said port being associated with said virtual network, and
 a bandwidth, between the upstream portion of the communications network and
 the network element, falling below a predetermined threshold as a result of
 the failure of the first link.
65. (New) The data processing system of claim 38, wherein
said first link is associated with a virtual network;
said second link is associated with said virtual network; and
said port of said primary network element is disabled as a result of
 said port being associated with said virtual network, and
 a bandwidth, between the upstream portion of the communications network and
 the network element, failing below a predetermined threshold as a result of
 the failure of the first link.